

EACS

Extendible Adaptable Ceiling Sliders

- A Prototype Study of Universal Room

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Problem

- Due to the limited space in ED (evident from hallway beds), we can't afford to have idle rooms.
- Examination rooms vary depending on the type of treatment they can provide.
- Due to the limited space in the rooms, medical equipment can cause congestion that hinders the medical staff from easily performing their work.
- Our proposal is to have an All-in-One concept where each room can serve any purpose (to an extent) ranging from Examination to Surgery.

Methodology

- Study the range of treatments being provided in the rooms and observe which equipment & materials are essential in the process (i.e. must be present in the room at all times).
- Abstract common equipment and provide a cost effective template delivery system that ensures redundancy without having any waste.

Solution

Design Intent

- Propose a prototype in which patient room can be utilized in a flexible way
- Equipment as a resource can be shared in different treatment

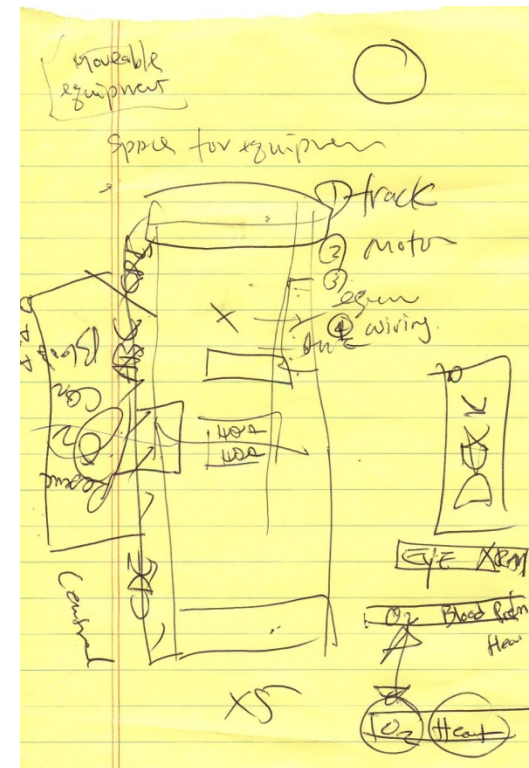
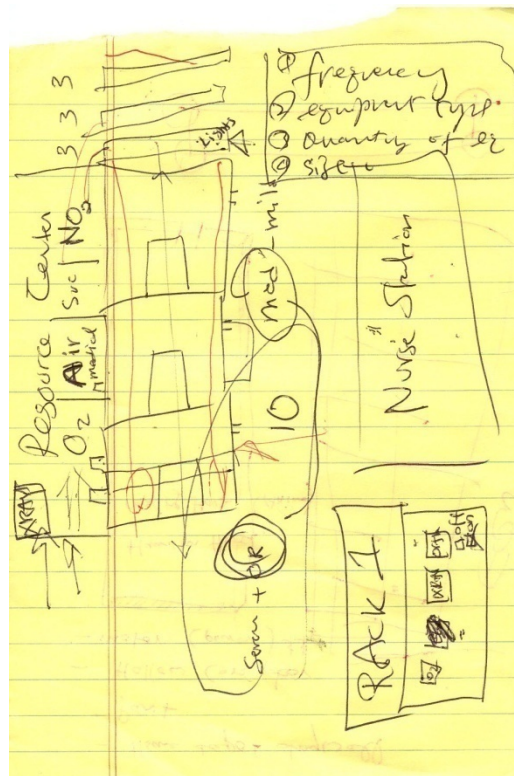
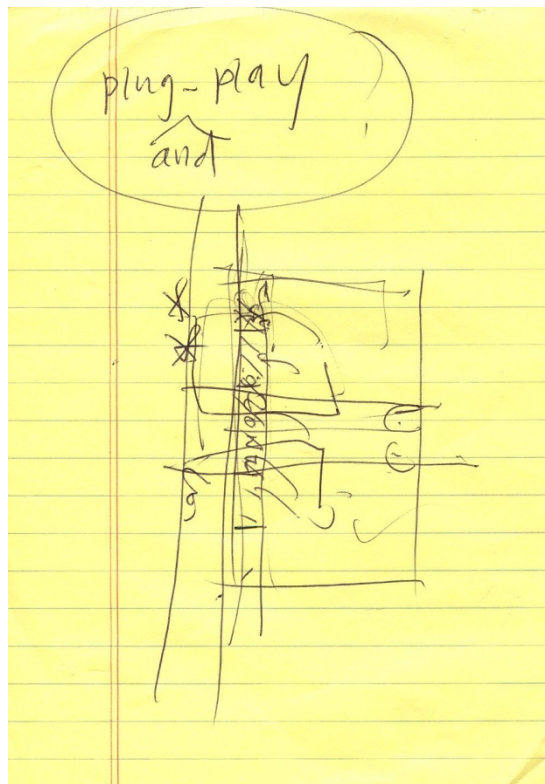
Solution

Space Layout

- Several rooms can be grouped together with removable partitions
- Resource center (equipment zone) is attached to patient rooms with an easy access to staffs

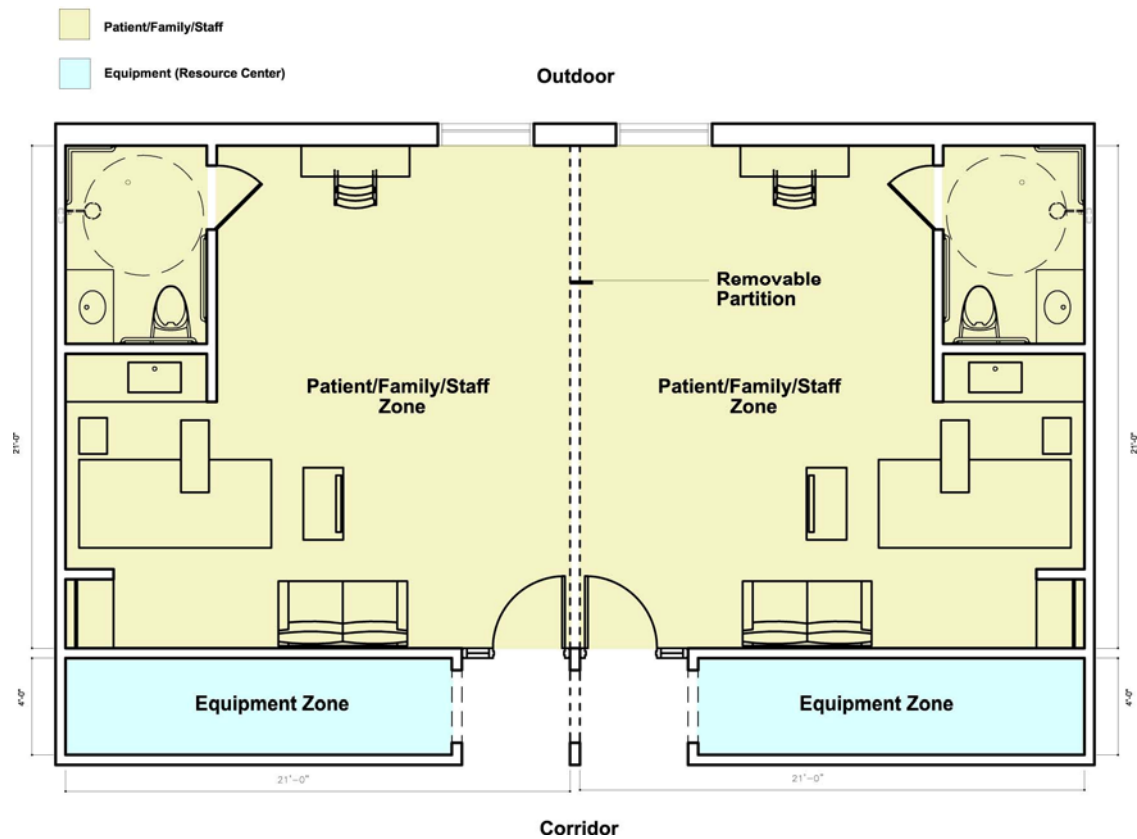
Solution

Space Layout – Sketch



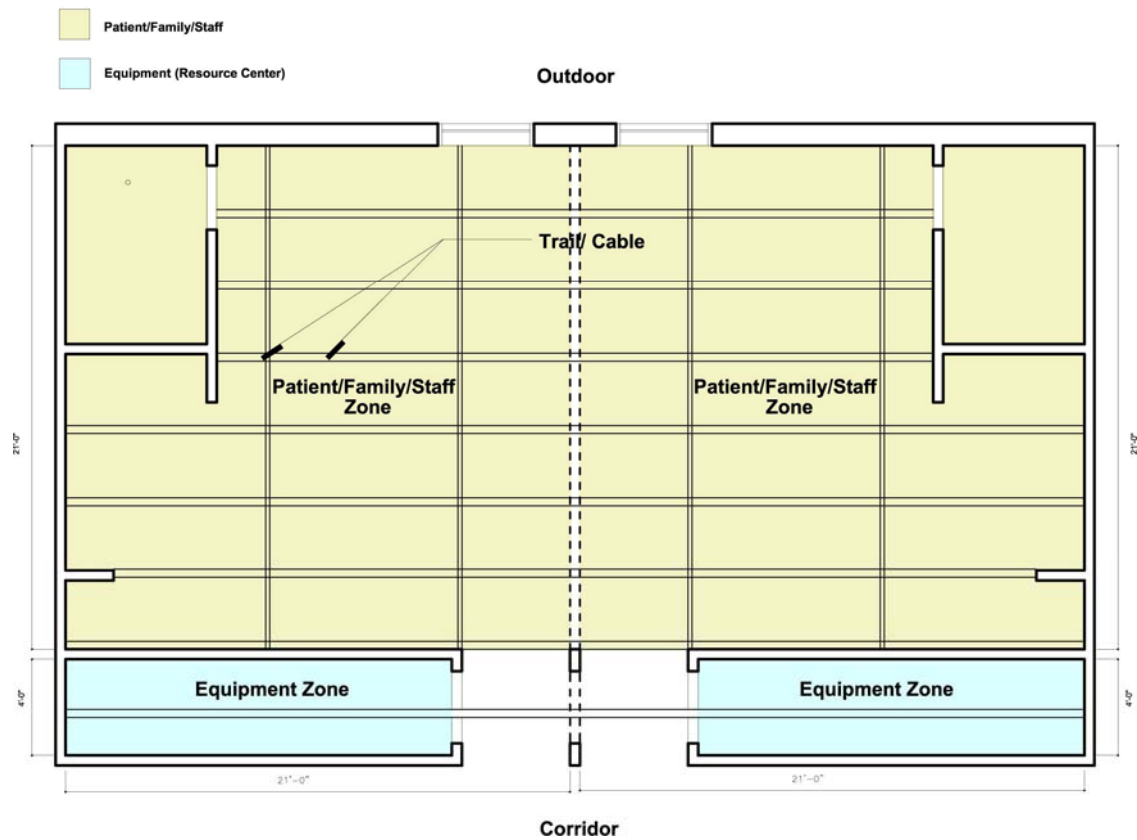
Solution

Space Layout - Plan



Solution

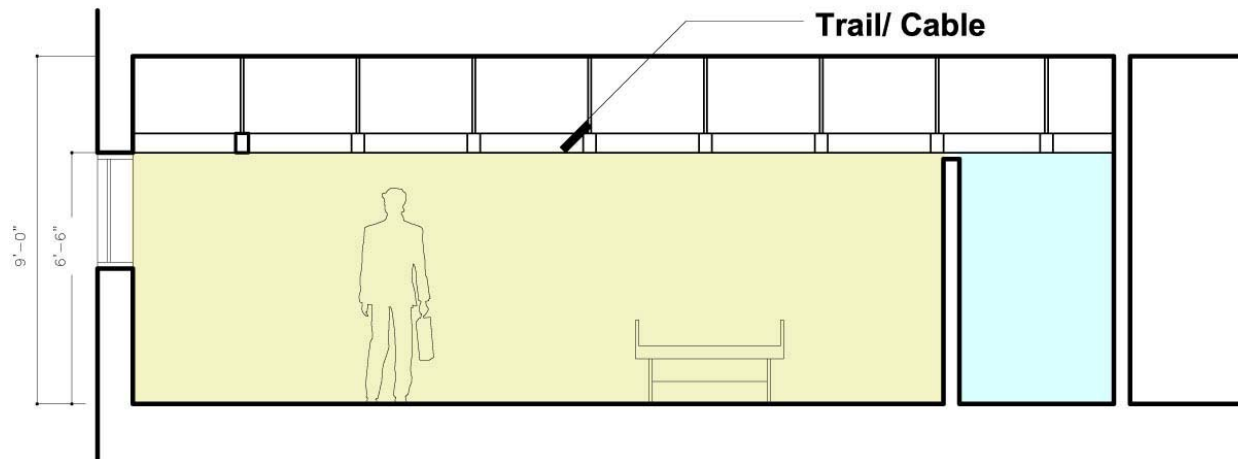
Space Layout – Ceiling Plan



Solution

Space Layout - Section

- Trail, cable and tray on the ceiling to provide flexible location for equipment



Solution

Functional Specification

- Scope of treatment
- Procedure identification
- Equipment / fixture specification

Solution

Functional Specification



Solution

Functional Specification



Lighting : radius from 20'' to 30'' for surgery

Ultrasound : 11'' x 16'' x 12''



Solution

Functional Specification



Defibrillator : 10'' x 7'' x 4''

Oxygen mask :



Pulse oximeter :
5'' x 11'' x 11''



Solution

Functional Specification



ECG machine : 12'' x 9'' x 7''



Rapid infusers



Endotracheal tubes

Solution

Mock-Up

- Our solution is a moving rack that drops into place providing the necessary (case dependent) equipment.
- We plan to simulate our solution using software to model our design.
- Time permitting, we will build a real model that is fully (time/complexity dependent) functional.

Thank you!